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Alabama Board of Nursing

Alabama's 2000-2001

Registered Nurse and
Licensed Practical Nurse Workforce

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Revised by

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ALABAMA'S

REGISTERED NURSE AND LICENSED PRACTICAL NURSE

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INTRODUCTION

Nursing, the largest health care labor market, is comprised of approximately 2,694,000 registered nurses (HRSA, 2002) and 702,000 licensed practical nurses (Bureau of Labor Statistics, 2002). Even so, there is a shortage in the needed workforce supply and an even greater shortage predicted. Factors contributing to the situation relate to the health of the American public, job market opportunities, and characteristics of the nurse population (AFSCME, 2002).

Health related factors include: (1) an increase in health prevention and maintenance needs, (2) an increase in the number of older Americans whose health has created a greater need for skilled assistance, (3) an increased acuity of individuals entering acute care facilities, and (4) diversification of health care delivery institutions. Societal changes have influenced the potential market for nurse manpower supply. Prior to the 1970s, career opportunities were limited for women. Nursing was among the primary work opportunities. In recent years, career opportunities have opened for women that were traditionally reserved for men. Although modern nursing is not gender restricted, nursing's image, as a profession for white women, serves as a deterrent to the number of minorities and men entering the profession. Additionally, women career choices are no longer restricted; thus, women are electing professions other than nursing.

Staiger, Auerbach and Buerhau's research (2000) showed that since 1973, the percentage of college freshmen who indicated nursing among their top career choices have decreased by approximately 40%.

Until recently, the nurse population increased in numbers while gradually losing its older members. However, the associate degree education program for adult learners attracted older students who may be pursuing second careers, thus elevating the mean age of nurses. According to data from the National Sample Survey of Registered Nurses (NSSRNs) (1980, 1984, 1992, 1996, 2000), the average age of working registered nurses (RNs) has increased by 4 years during the past two decades. Predictions were made in 1996 that within five years the average age would increase to 45. Implications of this aging workforce are tremendous. Thus, these factors, an aging nurse population, an increasing need for nurses, and the declining selection of nursing as a career, raised concerns about assuring that the supply of nurse manpower is available to meet the public's demand (Buerhaus, Staiger, & Auerbach, 2000; Staiger et al., 2000).

This concern has culminated in a number of states placing nurse manpower issues in priority for legislative consideration in 2002. In a survey conducted by the National Conference of State Legislatures (2002), only three states failed to identify nursing shortage or other nurse provider issues among other legislative priorities dealing with health (Alabama, Idaho, and New Mexico). The remaining states designated provider issues that included nurses as high legislative priorities.

Alabama's Nurse Workforce

The Alabama Board of Nursing has been proactive in addressing nurse workforce issues. Chronologies of events that have been executed in this effort are as follows:

(1) Hosted a task force, on April 21, 2000, to address workforce issues. While focus was primarily on establishing a workforce database, workforce concerns were also raised. Among these were potential shortage of nurse supply, particularly in rural areas, decline in nursing school enrollments, recruitment strategies, and retention of nurses.

(2) Conducted a workforce survey of registered nurses that were renewing licenses in the year 2000. The data were scanned and analyzed in 2001. A formal report was presented as an initial workforce study.

(3) Sponsored and conducted a statewide teleconference on the nursing shortage in 2001. Dr. Peter Buerhaus, considered to be the premier researcher on nurse manpower shortage, specified contributing factors to the declining nurse population. Among these were: the aging nurse population, the increasing aging public population, expanding career opportunities for young women, and societal focus on economic models and non-responsiveness to health care delivery to address this issue.

(4) Led in the establishment of a Governor's Taskforce on Health Manpower, 2001.

(5) Conducted a study of advanced practice nurses. The survey that was developed for this study included demographic and work data as well as addressed monitoring and investigating prescriptive practice related to pain management. The study was funded by the Mayday Project of the American Society of Law, Medicine and Ethics.

(6)   Conducted a workforce survey of licensed practical nurses that renewed

licenses in the year 2001. The results of this survey are included in this

report.

Purpose of the Study

In Alabama, nurses who wish to practice their profession must be licensed in

accordance with the *Code of Alabama,* 1975, Sections 34-21-20; 23, Article 2,

"Licenses." Additionally, nurses must renew their licenses every two years. Registered

nurses (RN) renew in even years and licensed practical nurses (LPN) renew in odd years.

Nurses may endorse into the state if specific educational requirements along with other

standards are met. Nurses may also request reinstatement of their licenses when the

license has lapsed. Renewal requirements include meeting mandatory continuing

education standards.

The Alabama licensee population is liquid, as is the workforce population. For

several years the numbers of licensees have increased in all categories. Even so, sporadic

outbreaks of "shortage" have occurred spurring action to assure that adequate numbers of

qualified personnel are provided to meet the general populations' health care needs.

Shortage data are, however, not well validated. Nor are workforce data comprehensive.

While desirable, nurses are not required to provide workforce data at the time of

license renewal. The numbers of licensed nurses do not always correspond with the

numbers of nurses who are employed. This report is the second in a two-series study.

The first in the series involved the Alabama registered nurse workforce who provided

data during the 2000 renewal period. The purpose of this study was to analyze and

synthesize statistically valid demographic workforce data provided by registered nurses

during the 2000 renewal period and the licensed practical nurses in the 2001 renewal period. One aim is to contribute data that may be applied to planning for and providing an adequate supply of nurse manpower to meet the public's health care needs. Through a process of validation, and filtering, the study population included 41,137 valid cases (n = 30,127 RNs; n = 11,010 LPNs). This accounted for 70.08% (n = 30,127 of 42,984) of the total RN licensee population and 71.5% (n = 11,010 of 15,358) of the LPN population. These data show a reduction in the valid cases of the RN population from the first study due to the filtering of variables.

METHODOLOGY

Quantitative demographic and workforce data were collected by survey during the biennial renewal period for registered nurses (2000) and licensed practical nurses (2001). The survey instrument consisted of 24 variables that examined nominal/categorical data such as age, ethnicity, marital status, and education. Work related data included type of license, advanced practice certification, work setting, and clinical area (specialty). Information regarding the county where the licensee resided as well as where he/she worked, the number of hours he/she usually worked, and the number of hours he/she anticipated working in the next five years was obtained. The data were analyzed using the 9.0 Statistical Package for the Social Sciences (SPSS). Included were the usual demographic data and various employment statistics. Descriptive statistics, Chi square, cross tabs and ANOVA were used to analyze the data. The purpose of this study was to ascertain the registered nurse and licensed practical nurse workforce within the state of Alabama. Specific research questions were:

1. Is there a significant difference in the numbers of nurses who have an active license status and the numbers of nurses who self report full-time employment status?

2. Is there a declining population of younger nurses?

3. Does the nurse workforce resemble the population diversity for the State of Alabama?

4. What type settings employ the majority of the nurse workforce?

5. What clinical areas do most nurses work in?

6. Are there sociological factors that influence employment status of the nurse workforce?

Design

A comparative descriptive design was used for this study. According to Burns and Groove (2001), the comparative descriptive design examines and describes naturally occurring differences in variables in two or more groups. Descriptive and inferential statistical analysis may be used with this design. This design allowed the investigator to describe the current self-reported ethnicity, educational preparation, and employment status of 2 groups of nurses (registered nurses and licensed practical nurses) in the State of Alabama.

Setting

This study utilized a survey instrument that was mailed out to participants during the biennial licensure renewal period, which was fall, 2000, for registered nurses, and fall, 2001, for licensed practical nurses. These times were selected to facilitate data collection. Participation in this study was voluntary. The survey did not contain any

information that would identify the licensee in any way and election not to participate in the study did not alter the renewal process.

Sample

A convenience sample of 41,137 nurses within the state of Alabama participated in this study; however, for some analyses, as many as 3,387 nurses were eliminated due to missing data.

Groups. Participants were placed into two comparison groups based on their licensure type, registered nurse or licensed practical nurse. These categories facilitated examination of the relationship of the individual's licensure status to self-reported variables such as age, education, income, marital status, gender, and ethnicity as well as allowed for statewide comparisons.

Instrumentation

The questionnaire utilized for data collection was developed by the workforce steering committee. Committee participants generated questions that were thought to impact the nurse workforce supply, such as age, gender, employment status, and clinical area of practice. Experts in the field were consulted to establish content validity.

Participant Characteristics

Ages for the entire sample of 38,474 participants ranged from 21 to 90, with a mean age of 43.19 years (See Table 1). Ages of subjects who were registered nurses ranged from 21-89, with a mean age of 43.15.

Table 1

Mean Age of RNs and LPNs in the State

Variable	Total x	SD	RNs x	SD	LPNs x	SD
Age	43.19	10.86	43.15	10.68	43.2	11.30

Note. N for the total sample equals 38,479 subjects. N for the RN Group equals 27,826 subjects. N for the LPN Group equals 10,653 subjects.

Ages of subjects who were licensed practical nurses ranged from 21-90, with a mean of 43.29. There were no significant differences (p< .05) in the mean age among the two groups (see Table 2).

Table 2

ANOVA Summary for Age

Source	DF	Sum of Squares	Mean Square	F Ratio
Between groups	1	149.813	149.813	1.271
Within groups	38477	4534901.3	117.860	
Total	38478	4535051.2		

*denotes a significance level at the p< .05 level.

The age of the nurse workforce in the State of Alabama is less than the national average which was estimated at 45.2 years according to the National Sample Survey in March 2002 (HRSA, 2000). Plausible rationale for this difference may be explained by the

larger percentage of nurses within the state who self-reported being less than 30 years of age (see Figure 1). Analysis of ages by age groups showed that 11.2% (n=3,110) of the registered nurses and 11.5% (n=1,221) of the licensed practical nurses self reported ages less than 30 years.

Figure 1

Age Groups of the Sample
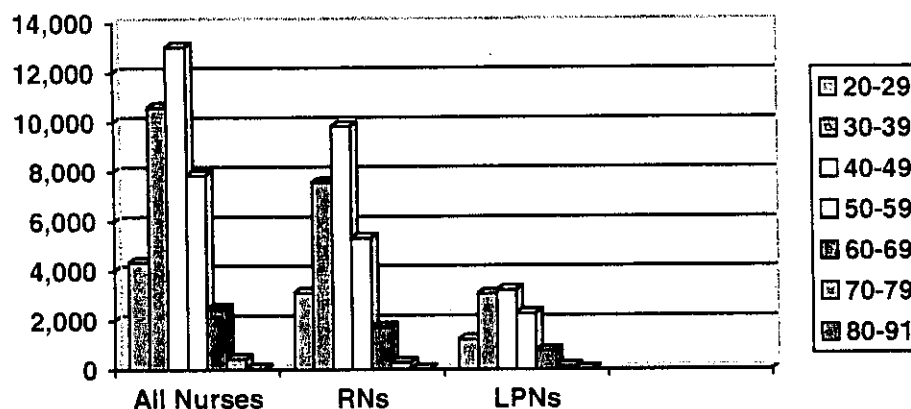
Note. N for the total sample equals 38, 479 subjects. N for the RN Group equals 27, 826 subjects. N for the LPN Group equals 10,653 subjects.

According to the National Sample Survey (HRSA, 2000), only 9.1% of the registered nurse population were under the age of 30 and 31.7% were under the age of 40. A total of 38.4% (n=10,662) of the registered nurses in the state were under the age of 40; however, 60% of the Registered nurse group (n=17,164) and the licensed practical nurse group (n=6,370) were 40 and older. Approximately 6% of the active registered nurse workforce and 8% of the licensed practical nurse workforce self reported ages 60 and above. These findings are very similar to the aging pattern noted for the State of Alabama. For example, 20.5% of the population were between the ages of 20 and 35; whereas 23.2% (n=6,454) of the registered nurses and 26.3%

(n=2,804) of the licensed practical nurse population were between the ages of 20 and 34. Fifty-one percent of the population were 35 and above; however 73% of the registered nurses (n=21,372) and licensed practical nurses (n=7,849) were 35 and older (U. S. Census, 2000).

Nursing, a predominately white, female profession, has responded to the shortage by trying to recruit minority groups and males. According to the National Sample Survey (2000), males accounted for 5.4% of the registered nurse workforce. In Alabama, males accounted for 7.2% (n=2,811) of the nurse workforce, of which 85.6% (n=2,405) were registered nurses and 14.4% (n=404) were licensed practical nurses (Figure 2).

Figure 2

Males in the nurse work force
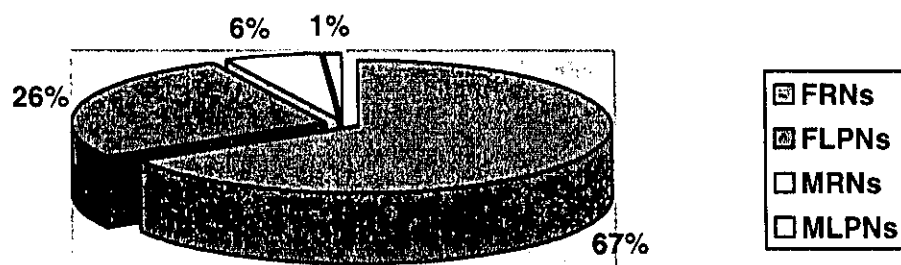
Eight and one half percent of the registered nurses in Alabama were males, higher than the 5.4% noted nationally; yet, not representative of the male population in the state of Alabama, which was 35.3% for males 18 years of age and over. Additionally the National Sample Survey (2000) purported that male nurses tend to be younger than their female counterparts, with 38% of males being under the age of forty as compared to 31% of the females. Approximately 13.3%

(n=360) of male nurses in Alabama were less than 30 and 45.8% (n=1,241) were less than 40

years old. Only 11.1% (n=3900) of female nurses were less than 30 years of age and 38.4%

(n=13,477) were under the age of 40; thus, male nurses in Alabama tend to be younger than their

female counterparts (Figure 3).

Figure 3

Age groups by Gender
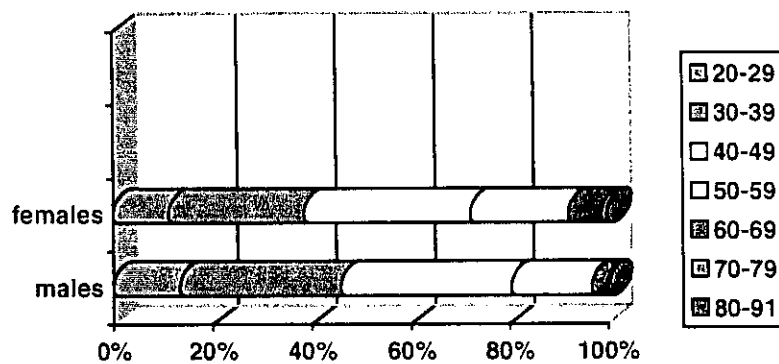
One of the methods recommended to address the needs of a culturally diverse population

is to prepare a culturally diverse healthcare workforce (DHHS, 200). Thus, strategies to recruit

and/or increase the number of ethnic minorities have been employed. According to the Census

Bureau (2000), Whites/Caucasians accounted for 70% of the population and Blacks/African

Americans accounted for 26% of the population in the state of Alabama. Other minorities

represented in the state include Hispanic, 1.7%; American Indian, 1%; Asian, 0.9%; native

Hawaiian/Pacific Islander, 0.1; and others, 0.9%. Nationally, 12% of registered nurses came

from racial and ethnic backgrounds, of which 40% were black, 28% were Asian, 16% were

Hispanic, and 3.9% were American Indian. In Alabama, 20.9% of the nurse workforce came

from racial and ethnic backgrounds, of which 90% were black, 3% were Asian, 2% were

Hispanic and 3% were American Indian (Figure 4).

Figure 4

Ethnic and Racial Composition of the Minority Nurse Workforce
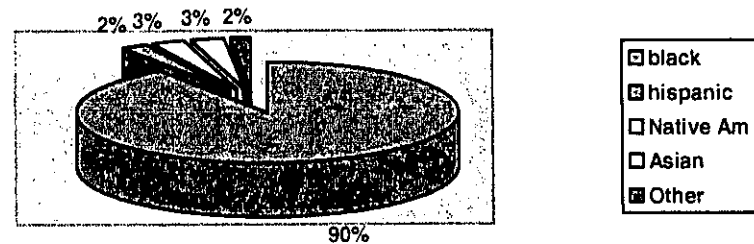
Fifteen percent (n= 4,146) of the registered nurse workforce (n=27,704) and 36.7% (n=3,829) of

the licensed practical nurse workforce (n=10,430) came from racial and ethnic backgrounds.

Seventy-nine percent of nurses in Alabama were white and 18.9 percent were black. Nurses

from other racial/ ethnic backgrounds accounted for less than 2% of the nurse workforce (Table

3). Thus, the nurse workforce diversity does not reflect the cultural diversity within the state.

Table 3:

Ethnicity of the Nurse Workforce--

	Total		RNs		LPNs	
	N	%	N	%	N	%
Caucasian/White	30159	(79.1)	23558	(85.0)	6601	(63.3)
African American/Black	7225	(18.9)	3601	(13.0)	3624	(34.7)
Native American	241	(0.6)	143	(0.5)	98	(0.9)
Asian/Pacific Islander	216	(0.6)	194	(0.7)	22	(0.2)
Hispanic	165	(0.4)	118	(0.4)	47	(0.5)
Other	128	(0.3)	90	(0.3)	38	(0.4)
Total	381340		27704		10430	

A closer analysis of the ethnic/racial data revealed that of the males in nursing, 9.4%

(n=254) were African American, 1.1% (n=30) were Native American, 1.0% (n=26) were

Hispanic, 0.6% (n=17) were pacific Islander, and 9.7% (n=12) were others. None of the

Pacific Islander male nurses were LPNs.

According to the National Sample Survey (2000), family status affects the

employment status of nurses. The survey revealed that 71.5% of registered nurses were

married, 17.9% were widowed, divorced, or separated, and 9.9 % were never married.

Seventy-one and one half percent (n=20,326) of the registered nurses in Alabama were

married, 26.1% (n=5,458) were widowed, divorced, or separated, and 9.3 % (2,653) were

never married. Examination of the total nurse workforce revealed similar data. Sixty-

eight percent (n=26675) of the nurses in Alabama were married, 21.9% (n=8,557) were

widowed, divorced, or separated, and 9.8 % (n=3832) were never married. Data revealed

that licensed practical nurses percentages for the categories never married, divorced,

widowed, and separated were higher than the registered nurses (see Table 4).

Table 4

Marital Status of the Nurses

	Total		RNs		LPNs	
	N	%	N	%	N	%
Married	26675	(68.3)	20326	(71.5)	6349	(59.7)
Widowed	1111	(2.8)	670	(1.4)	441	(4.1)
Divorced	6594	(16.9)	4377	(15.4)	2217	(20.9)
Separated	852	(2.2)	411	(2.4)	441	(4.1)
NM	2653	(6.8)	1179	(9.3)	38	(11.5)
Total	39064		28437		10627	

Note. NM denotes never married.

Education, Residence, Clinical Areas, Employment Status and Settings

Educational Preparation of Nurses

Persons desirous of becoming registered nurses may enter the profession through one of three educational routes, diploma program, associate degree program, or baccalaureate degree program; however, data revealed that the majority of persons interested in a registered nurse career choose the associate degree program route. There is only one educational route for persons interested in becoming a licensed practical nurse, a certificate program. According to the National Sample Survey (2000), 40% of registered nurses received their basic nursing in an associated degree program, 30% from a baccalaureate degree program, and 30% from a diploma program. Table 5 shows that 11,943 (42.2%) registered nurse participants reported the associate degree in nursing as the highest attained educational level. Approximately 30% (n=8,380) of the registered nurse participants reported the bachelor's degree as the highest attained educational level, and 11% (n=3032) of the registered nurse participants reported the diploma as the highest attained educational level. Further examination of Table 5 shows that 43.5% (n=12,550) of the registered nurses self- reported having college degrees. Most of the licensed practical nurses (84%, n=8977) self-reported having a certificate; however, 11.9% (1,259) self-reported having attained a(n) diploma, associate degree in nursing, or bachelor's degree in nursing. Attainments of these three degrees are usually associated with registered nursing; however, in the past, graduates from registered nursing programs who did not successfully write the licensure examination, were allowed to write the licensed practical nurse examination. Additionally, 1.7% (n=178) of the licensed practical nurses self-reported having college degrees.

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Table 5:

Educational Attainment of the Nurse Workforce

	Total		RNs		LPNs	
	N	*%*	*N*	*%*	*N*	*%*
LPN Certificate	9,069	23.3%	92	0.3%	8977	84.2%
Diploma	4,061	10.4%	3032	10.7%	1029	.7%
AD (non-nursing)	946	2.4%	674	2.4%	272	2.6%
ADN	12,155	31.2%	11943	42.2%	212	2.0%
BS (non-nursing)	1,412	3.6%	1278	4.5%	134	1.3%
BSN	8,398	21.6%	8380	29.6%		18
.2%						
MS(non-nursing)	795	2.0%	777	2.7%	18	.2%
MSN	839	4.7%	1839	6.5%		
Doctorate	158	.4%	156	.6%	2	0%
Doctorate in Nursing	120	.3%	120	.4%		

Note. Total Nurse population equals 38.945. RN population equals 27,991, and LPN population equals 10.662. AD denotes associate degree. BS denotes bachelor's degree, and MS denotes masters' degree.

Figure 5 graphically depicts the educational attainment of the nurse workforce in

Alabama.

Figure 5:

Educational Attainment of the Nurse Workforce
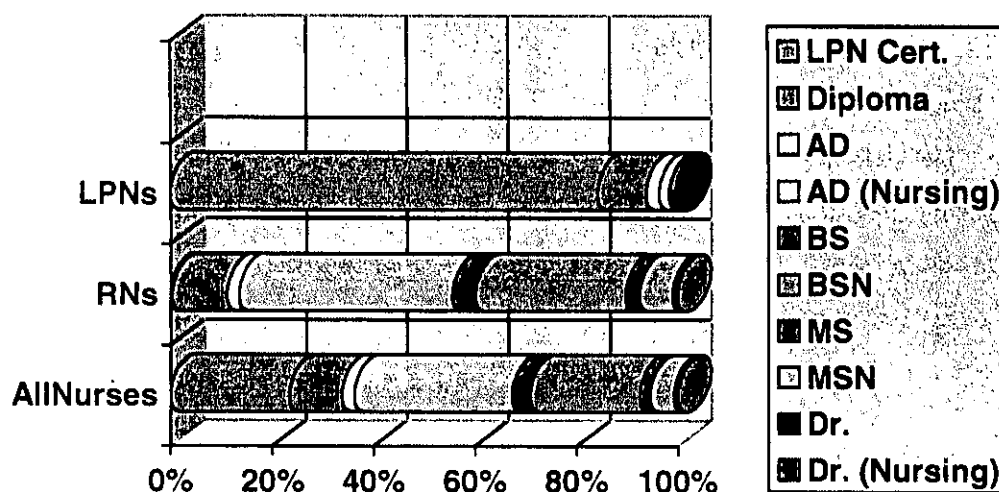
Residence of Nurses in the State

The general population of nurses is distributed throughout Alabama similar to

that of the general population. The greater the general population in a particular county,

the greater the population of the workforce. Figure 6 provides a depiction of the counties

of residence of nurses for the state. Approximately 50% of the registered nurse

population (n=30,127) reside in seven counties, Jefferson (17.3%, n=5203), Mobile

(9.1%, n=2746), Madison (5.6%, n=1693), Shelby (5.1%, n=1543), Montgomery (4.8%,

n=1444), Tuscaloosa (4.7%, n=1412), and Baldwin (3.5%, n=1056). Approximately

40% of the LPN population reside in the same seven counties. Using 2000 census data,

the populations of each of these counties exceeds 100 thousand. Only three other

counties in Alabama have populations of greater than 100,000: Calhoun, Lee, and

Morgan (see Figure 6).

Figure 6

Resident Counties of the Nurse Workforce
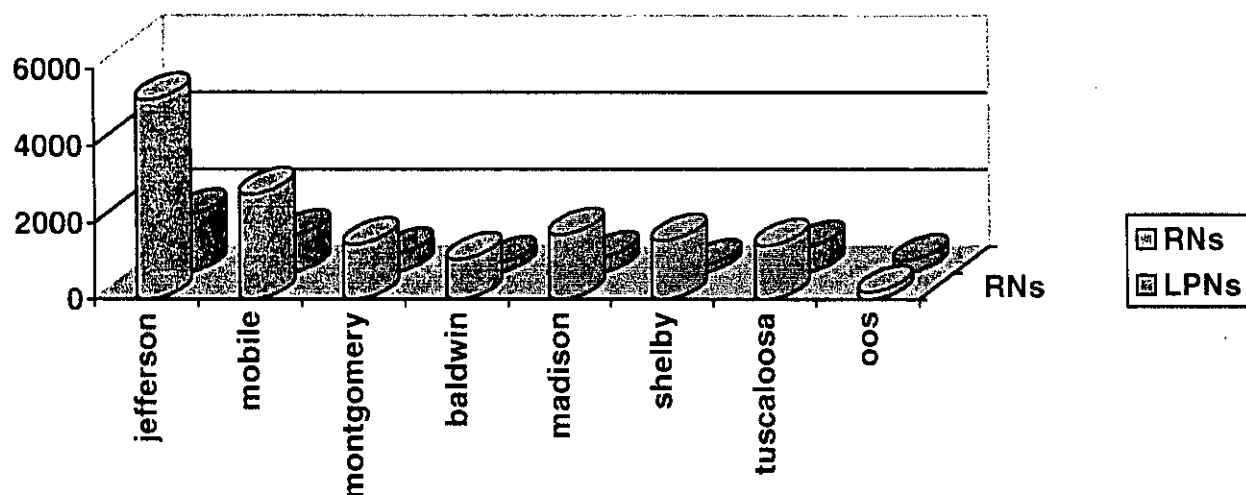
Note. Counties displayed are Jefferson, Mobile, Montgomery, Baldwin, Madison, Shelby, Tuscaloosa, and Out of State, respectively.

Although the registered nurse population (n=30,127) is 2.7 times greater than the

licensed practical nurse population (n=11,010), there are several counties in which the

number of LPNs exceeded the number of RNs. These counties include Barbour, Bibb,

Bullock, Butler, Hale, and Macon (see Figure 7). A limited number of skilled care beds

in these counties may provide rationale for this phenomenon (ADPH, 2001).

Figure 7

Counties in which the number of LPNs exceeds RNs
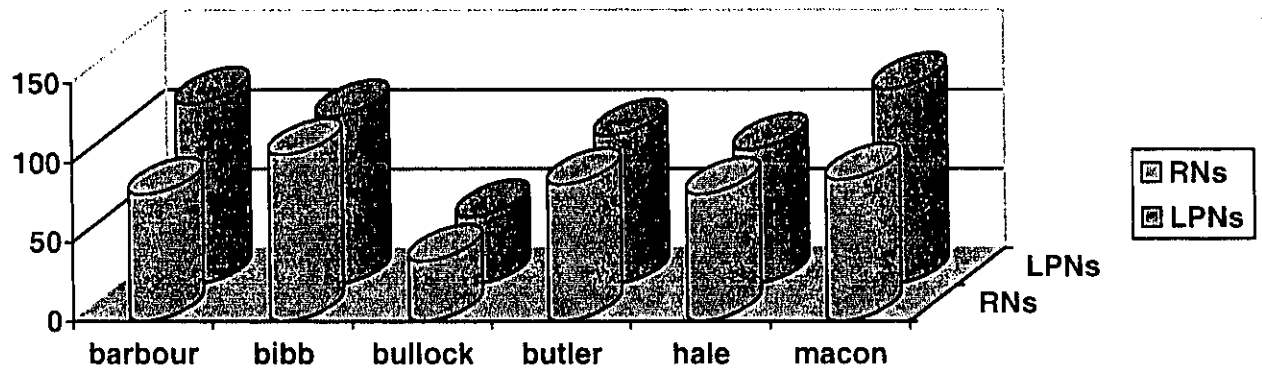
Figure 8 provides data on the registered nurse population resident county and the

primary county of work. One may observe that the numbers of the workforce counties of

residence are not always consistent with the workforce population of the primary

counties of work. There was a notable difference in the number of nurses who lived in

one county, but worked in a different one. Counties in which employed registered nurses

exceeded registered nurse residents were Jefferson, Mobile, Montgomery, Houston,

Macon, Madison, and Russell.

Figure 8

Employed RNs Exceed Resident RNs
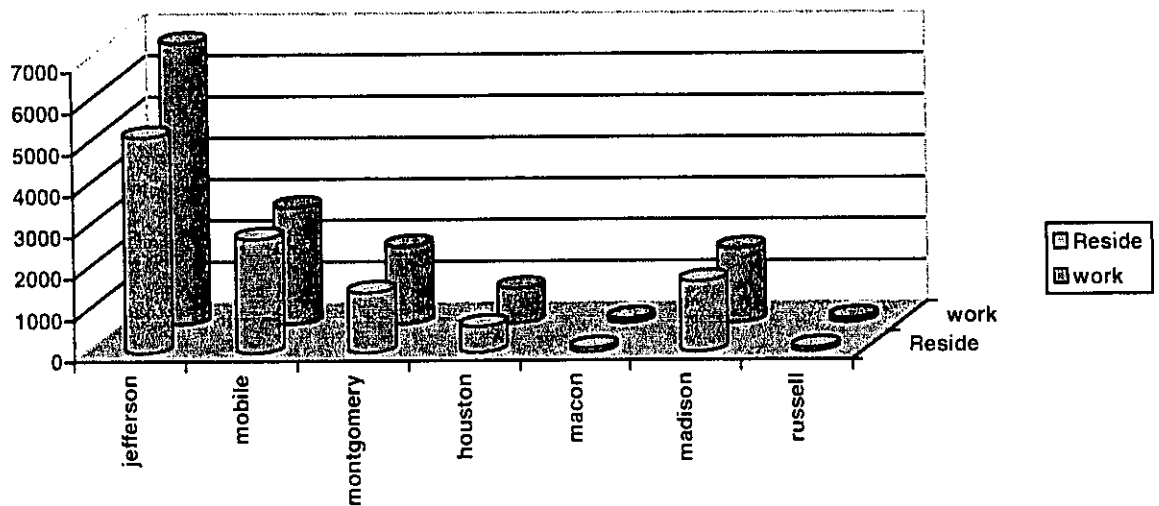
Additionally, there were several counties whose number of RN residents exceeded

employed RNs, Elmore, Henry, and Shelby Counties for example (Figure 9).

Figure 9

Resident RNs exceed Employed RNs
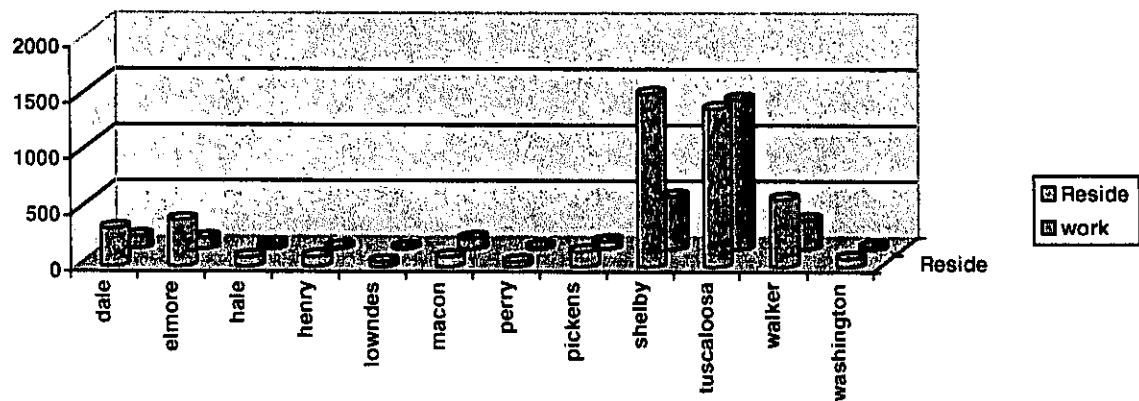
Figure 10 provides data on the licensed nurse population resident county and the primary county of work. Again, there is a notable difference in the number of LPNs who lived in one county, but worked in a different one. Counties in which employed licensed practical nurses exceeded resident licensed practical nurses include Jefferson, Montgomery, Houston, and Madison.

Figure 10

Employed LPNs Exceed Resident LPNs
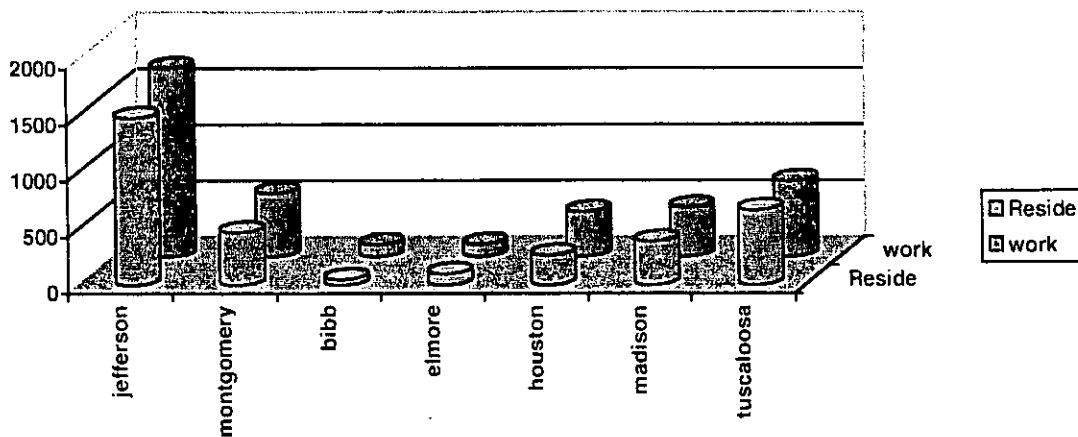
Additionally, there were several counties whose number of LPN residents greatly

exceeded employed LPNs, Chilton, Coosa, and Lawrence Counties for example (Figure

11). When examining figures 7 and 8, 9, and 10, one can see that Baldwin, and Shelby

Counties showed a considerable drop in numbers of nurses (RNs and/or LPNs) working

outside their residence counties. Reasons for such variance may be related to work

opportunities in adjacent counties such as found in Shelby to Jefferson County, which

holds Birmingham, a city in which health care is considered to be the major industry.

Figure 11

Resident LPNs Exceed Employed LPNs
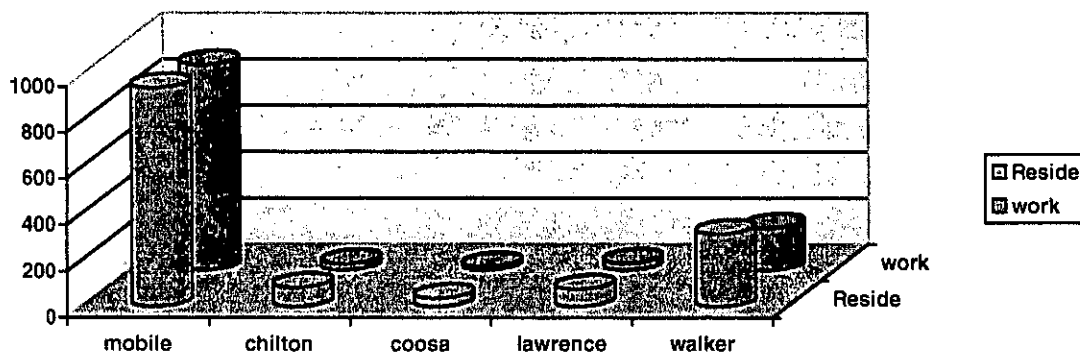
Several nurses provided data regarding secondary employment. Of the nurse

workforce who responded to this question (n=34,930), 8,940 (26%) self-reported that

they worked an additional job. Of the 8,940 licensees who held additional positions in

second locations, 1,111 (2.7%) self-reported that they worked out of state. Seventy-two

percent (n = 6,396 of 8,940) of the nurses holding second jobs in this study were

registered nurses and 28% were LPNs (n = 2,544 of 8,940).

The data presented in Figures 7,8,9,10, and 11 may provides rationale for the

percentage of nurses in the workforce who traveled more than 25 miles one way to work.

The data revealed that 19.7% (n=7588) of the nurse workforce traveled more than 25

miles one way to work. Approximately 20% of registered nurses and 19% of licensed

practical nurses traveled more than 25 miles one way to work. Approximately 40% of

nurses traveled less than 10 miles and approximately 40% traveled 11-25 miles one way

to work (see Figure 12).

Figure 12

Miles Traveled to Work
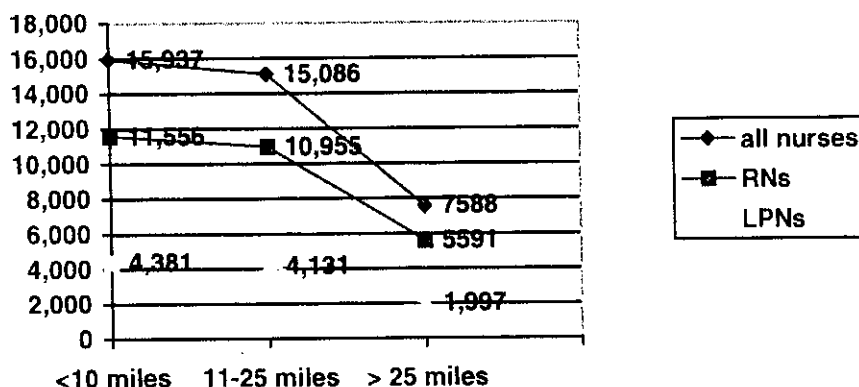
Note. Total number of nurses = 38,611, Number of RNs =28,102, and Total number of

LPNs =10,509

Employment Status of Nurses

According to the National Sample Survey (2000), approximately 82% of

Alabama's registered nurse workforce were employed in nursing full time, which

resulted in 766 Registered nurses per 100,000 population. The ratio of registered nurses

for the East South Central Region was 815 per 1000,000. Of the four states in this

region (Alabama, Kentucky, Mississippi, and Tennessee), Mississippi and Alabama fall

below the number of employed registered nurses for the region with 750 and 766

registered nurses employed per 100,000 persons, respectively.

Analysis of the workforce data revealed that 71% of the registered nurses worked

full-time and an additional 14% were employed part-time. Approximately 85% of

registered nurses were employed in nursing, and 14% of registered nurses were retired,

employed outside of nurses, and/or not interested in employment in nursing (see Figure

13). Only 1% of registered nurses reported actively looking for employment in nursing.

Figure 13:

Employment Status of Registered Nurses
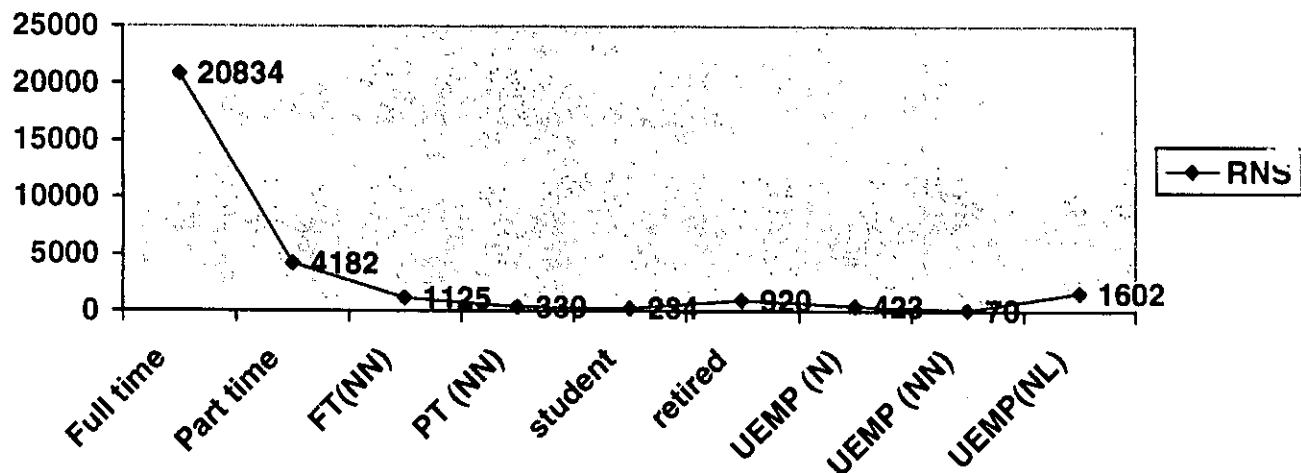
Note. FT (NN) denotes employed full-time in non nursing setting, PT (NN) denotes employed part-time in non nursing setting, UEMP (N) denotes unemployed, seeking a full-time position in nursing, UEMP (NN) denotes unemployed, seeking a full-time position in a non-nursing setting, and UEMP (NL) denotes unemployed, not seeking employment.

Analysis of the registered nurse workforce who self-reported that they were

retired, employed outside of nurses, and/or not interested in employment in nursing

(n=4281) is depicted in Figure 14. Thirty-eight percent (N=1602) of these registered

nurses were not interested in employment. Data were not obtained as to why these

nurses were not interested in employment or whether the employment status was

temporary. An additional 36% (N= 1525) of these nurses were either working in non-

nursing positions (34%, N=1455) or seeking employment in non-nursing positions.

Registered Nurses Employed in Non-Nursing Settings

Legend:
- ⊞ FT(NN)
- ⊠ PT (NN)
- ☐ student
- ☐ retired
- ▦ UEMP (NN)
- ⊠ UEMP(NL)

Pie chart values: 26%, 38%, 8%, 5%, 21%, 2%
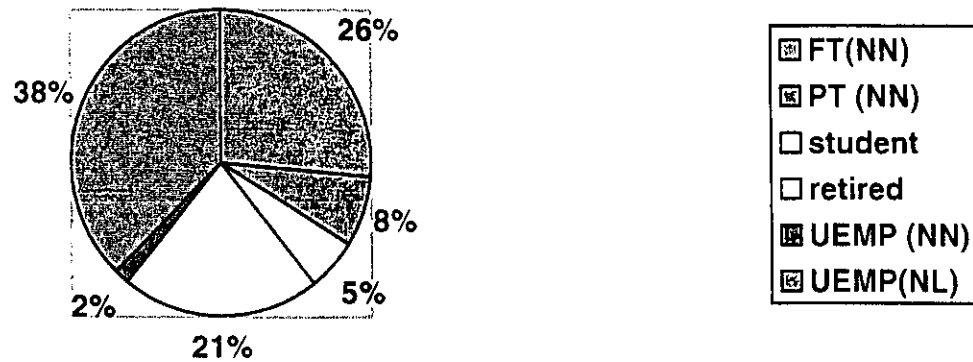
Analysis of the workforce data revealed that 86% of the licensed practical nurses worked full-time and 2% worked part-time; thus, 88% of licensed practical nurses were employed in Nursing. Approximately 9% of licensed practical nurses were retired, employed outside of nursing, and/or not interested in employment in nursing. An additional 3% of licensed practical nurses self-reported student status (see Figure 15).

Figure 15:

Employment Status of Licensed Practical Nurses
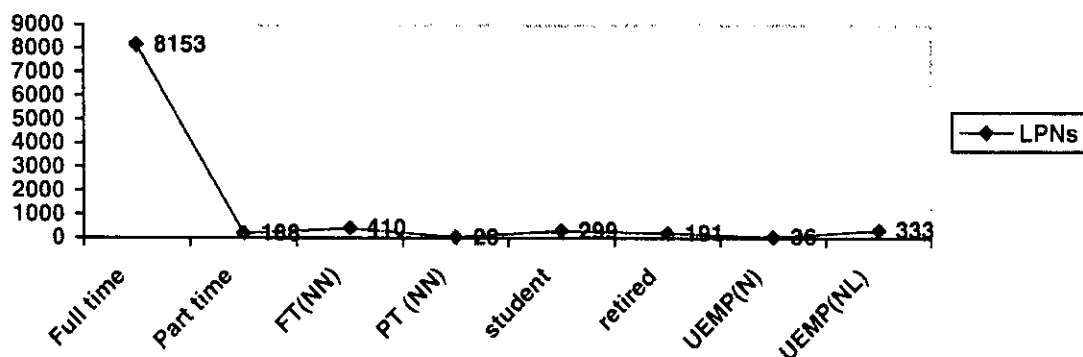
Clinical Areas

Figure 16 provides data relative to the clinical areas worked by registered nurses and licensed practical nurses. According to the U.S. Census Bureau, approximately 28% of Alabama's population was 19 years of age or younger, 59% were between the age of 20 and 64, and 13% were 65 years of age and older. For the combined groups, geriatrics was the first designated area of work (15.3%; n = 5,999 of 39,117) followed closely by medical-surgical nursing (14.3%; n = 5,599 of 39,117). Variance was observed between license types and these two areas of work. Of 5,999 nurses who indicated geriatrics, approximately 66% (n = 3,774) were licensed practical nurses. Approximately 75% of the 5,599 (n = 4,241) who indicated their clinical area was medical-surgical nursing were registered nurses. Although children may be included in the following areas of care, 47.9% or 13,749 registered nurses indicated they held positions generally considered as adult health oriented (ICU, ER, Surgery, Recovery, General Practice, Medical/Surgical, Oncology, and Orthopedic). Thirty-two percent of the LPNs also worked in these areas. There were also variances in clinical areas related to gender. For example, more than 36.7% of male nurses self-reported working in critical care/surgery/ recovery as compared to 19.8% of females.

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Figure 16

Clinical Areas
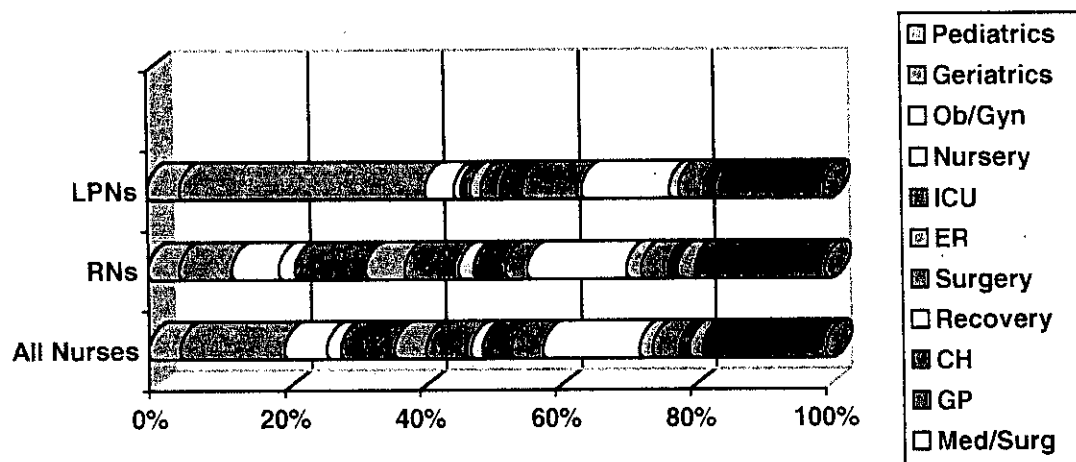
Figure 17 shows that the majority of the RN and LPN workforce are employed in clinically oriented settings. Those who listed "Other" did not disclose the area of work; however, other data from previous research indicates a small percentage of nurses work in education and research as well as other non-clinically directed practices.

Alabama's nurse workforce follows the national pattern for primary place of work (see Figure 17). The hospital setting continues to be the major employing institution, employing approximately 49% of nurses (n=18, 299 of n=38179), followed by nursing homes 12% (n=4625). Outpatient clinics and home health agencies employed 10.5% (n=4010) of the nurse workforce, 5.5% (n=2090) and 5% (1920) respectively). Additionally, gender plays a role in choice of employment settings. For example, in the state of Alabama, 67.2% (n=1865) of male nurses and 46% (n=16,434) of females nurses were employed in hospitals; whereas 12.5% (n=4439) of female nurses and 7% (n=186) of male nurses were employed in nursing homes. Chi-square was significant, p = .000,

for the educational preparation and the primary position of work. Diploma graduates,
associate degree graduates and baccalaureate degree graduates worked primarily in the
hospital setting. The major employer of Masters' prepared nurses were hospitals and
schools of nursing, respectively. Nursing Homes followed by hospitals were the major
employer of licensed practical nurses (See Appendix A for the cross-tabulation of degree
to work).

Figure 17

Employment Settings
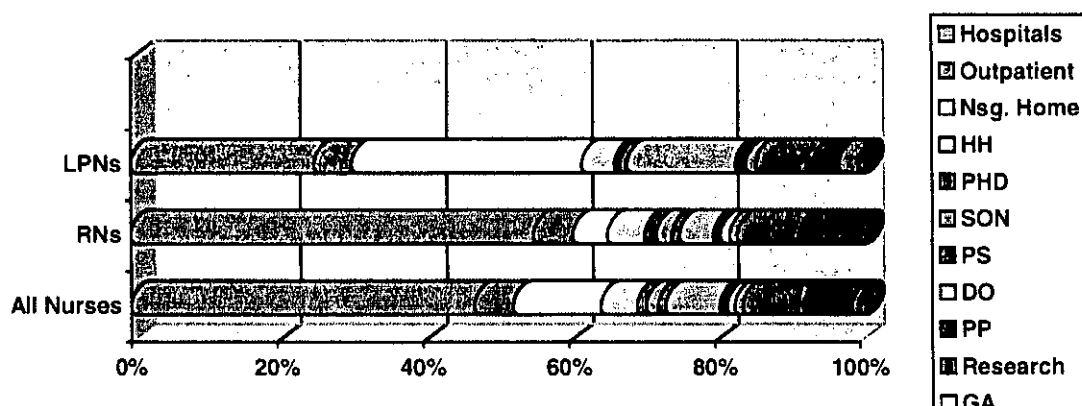
Note. Employment settings displayed include hospitals, out-patient clinics, nursing homes, home health
agency (HH), public health department (PHD), School of Nursing (SON), Schools (K-12) [PS], Doctor's
office (DO), private practice (PP), research center (research), governmental agency (GA), assisted living
(AL), other, not applicable (NA), and Insurance company/drug company (insure), respectively.

When examining the primary role in which nurses function, Figure 18 clearly
delineates that the majority of the nurse workforce (n=39,809), 60%(n=23,980) provided
direct patient care in the role of staff nurse. An additional 10% (n=4137) functioned in
the nurse managers or nurse administrators role. Approximately 2.6% (n=1016) of the

nurse workforce self-reported functioning as nurse faculty, and an additional 5%

(n=2113) self-reported functioning in support roles such as infection control, utilization

review, and case management. Approximately 22% of the nurse workforce did not

identify their primary role.

Figure 18

Roles of Nurse workforce
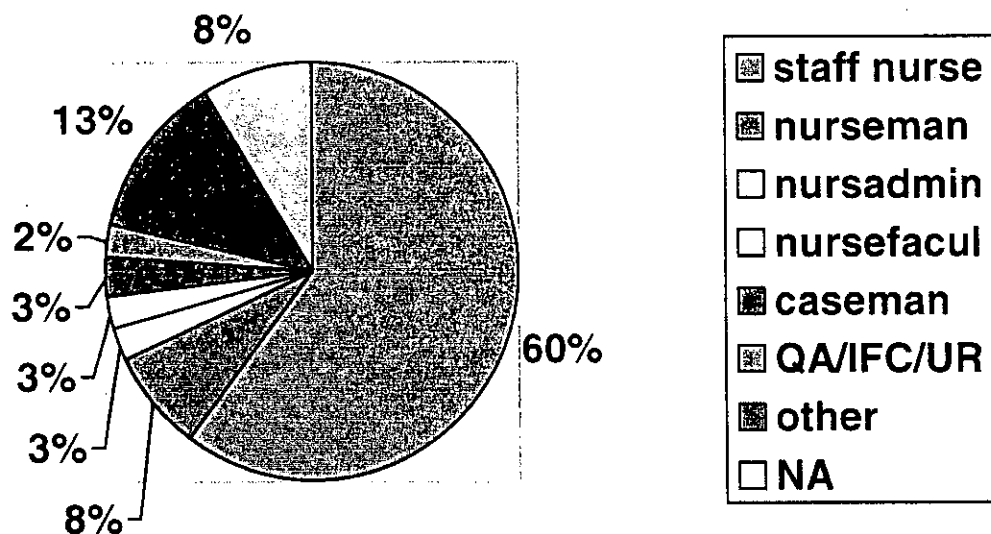
On a national level, approximately 74% of registered nurses provided direct

patient care, 5% were nurse managers/administrators, and 4% were nurse faculty (HRSA,

2002). In Alabama, of the registered nurses who responded to this question,

57%(n=16,784) were staff nurses, 13% (3688) were administrators, and 2% were nurse

faculty (see Figure 19).

Figure 19

Roles of Registered Nurses
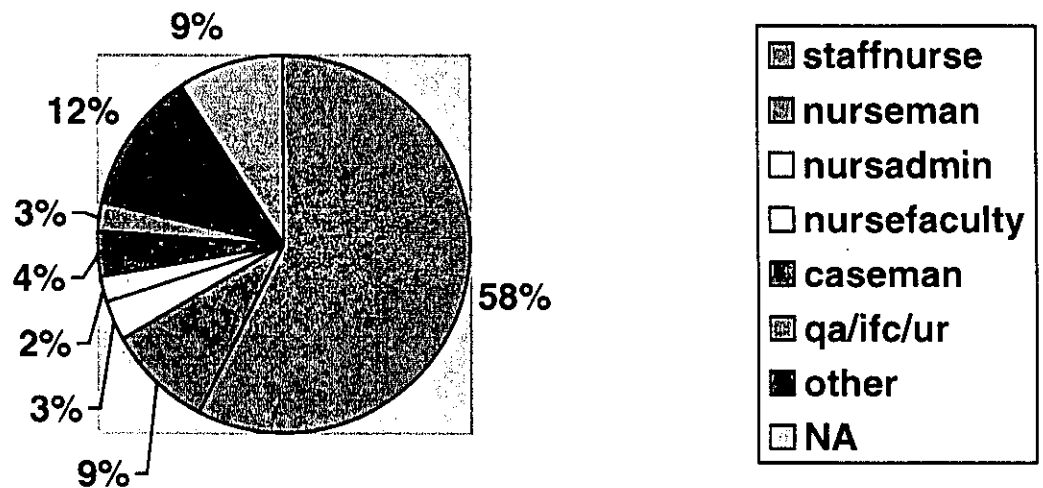
Examination of Figure 20 provides the primary roles of the licensed practical

nurses in the workforce. A larger percentage of licensed practical nurses (68%, n=7196

of 10, 552) as compared to the RN workforce provided direct patient care, 4% (449)

were mangers /administrators, and approximately 4% (376) were nurse faculty.

Figure 20

Roles of Licensed Practical Nurses
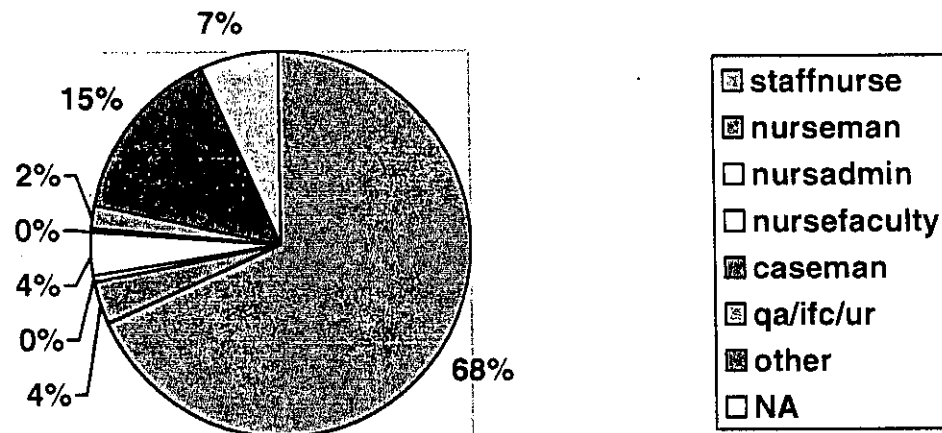
Table 6 shows that the primary position held by a vast majority of the nurse workforce (60.2%, n = 23,980 of 39,808) is that of the staff nurse

Table 6

Primary Position of RN and LPN Workforce (n = 39,809)

	Primary Position	Frequency	Valid Percent
Valid	Staff Nurse	23980	60.2
	Nurse Manager	3122	7.8
	Nursing Administrator	1015	2.5
	Nurse Faculty	1016	2.6
	Case Manager	1179	3.0
	Support Position QA/IFC/UR	937	2.4
	Other	5179	13.0
	Not Applicable	3380	8.5
	99	1	.0
	Total	39809	100.0
Missing	System	1328	
Total		41137	

As with the clinical area of work, the position/role of the workforce is significantly associated with the hours worked, $p = .000$.

Not surprisingly, given the percentage of nurses who work full-time and part-time, the mode for hours of work range between 21-40 per week. This is illustrated in Table 7.

Table 7

Hours Worked per Week by Alabama's Nurse Workforce 2000-2001

Hours Worked	License Type		Total
	RN	LPN	
0	3860	768	4628
1-20	2104	671	2775
21-40	14478	5221	19699
>40	9338	3926	13264
	29780	10586	40366

When comparing the data between Table 7 and Table 8, the mode of hours worked per week at the time of the study and the estimated work hours per week projected for the next five years remained the same. When examining the data between the 2000-2001 dates and the future projections, the picture assumed a different pattern. While the mode remained the same, several ($n = 1,462$) not working at the time of the study indicated that they plan to work in the future. The number, who indicated working greater than 40 hours per week at the time of the study is expected to be reduced by 946. Additionally, an examination of license type shows that over 2,000 RNs indicated that they do not plan to work over 40 hours per week while 1,074 more LPNs indicate plans to work more than 40 hours per week within five years.

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Table 8

Projected Hours of Work for the Future

Future Work Hours	License Type		Total
	RN	LPN	
0	2809	357	3166
1-20	3096	427	3523
21-40	16058	4545	20603
>40	7318	5000	12318
	29281	10329	39610

While this study did not request qualitative responses such as "why" the

individuals plan to shift their work patterns, a plausible explanation may relate to age.

Chi-square analysis was significant, p = .000, for age and plans for future work hours.

Table 10 (included as Appendix B) provides a cross-tabulation of age to the five-

year projected range of work hours. The modal age of 45 holds for the greatest numbers

of nurses planning to work between 21-40 hours per week. Additionally, 41% (7,974 of

19,235) of nurses, across a range of 63 years of age, who self-reported that they plan to

work 21-40 hours per week in five years were between the ages of 37-48.

Advanced Practice Nurses

According to the HRSA, 2002, increasing access and availability to health care

services serves as an impetus to increase the number of nurses in advanced practice.

Advanced practice nurses include clinical nurse specialists (CNS), nurse midwives

(CNM), nurse anesthetists (CRNA), and nurse practitioners (CRNP). Nationally,

approximately 7.3% of the registered nurse population were advanced practice nurses. In

Alabama, approximately 5.6 % self-reported advanced practice status. Nine hundred and

thirteen nurses self-identified themselves as certified nurse practitioners, 315 self-identified themselves as certified clinical nurse specialists, 864 self-identified themselves as certified nurse anesthetists, and 138 self-identified themselves as certified nurse midwives. These data are incongruent with the number of nurses currently certified to practice as an advanced practice nurse. For example, there are 29 nurse midwives in collaborative practice in the state of Alabama. The difference noted in the numbers of advanced practice nurses may be due to the difference between national certification versus board approved collaborative practice. Thus, a nurse may be nationally certified but if he/she is not in a board approved collaborative practice, the state does not consider that individual to be a certified nurse midwife of nurse practitioner. Of the nurses who self-identified themselves as advanced nurse practitioners (n=2230), 41% (n=913) were nurse practitioners, 39% (n=864) were nurse anesthetists, 14% (n=315) were clinical nurse specialists, and 6% (n=138) were nurse midwives (see Figure 21). Nationally, 45% of advanced practice nurses are nurse practitioners (CRNP), 28% are clinical nurse specialists (CNS), 15% are nurse anesthetists (CRNA), and 5 % are nurse midwives (CNM). An additional 8% are prepared as both clinical nurse specialist and nurse practitioner.

Figure 21

Advanced Practice Nurses
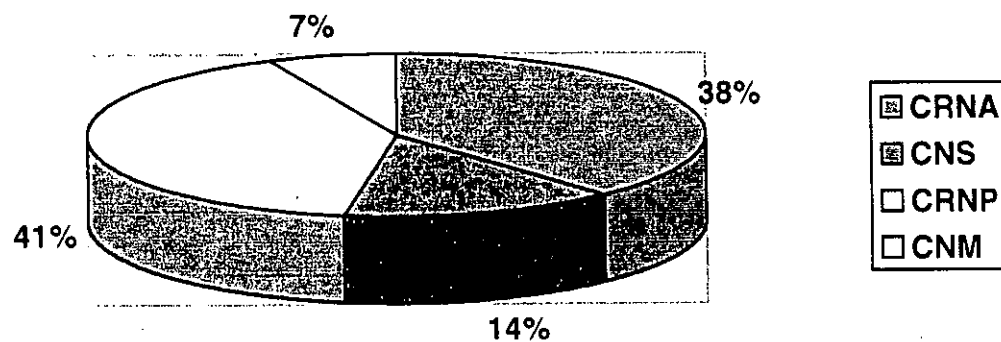
The age of the advanced practice nurse workforce in the State of Alabama was essentially the same (45.8 years) as the national average which was estimated at 45.2 years according to the National Sample Survey in March, 2000 (HRSA, 2000). Analysis of ages by age groups showed that 4% (n=32) of the CRNAs (n=816), 8% (n=10) of the CNMs (n=127), 4% of the CNSs (n=12) and 6 % (n=51) of the CRNPs (n=880) self-reported ages less than 30 years (see Figure 22). Only 5% of the advanced practice nurses were under the age of 30 and 27% were under the age of 40.

Figure 22

Age Groups of the Advanced Practice Nurses

	20-29
	30-39
	40-49
	50-59
	60-69
	70-79
	80-91
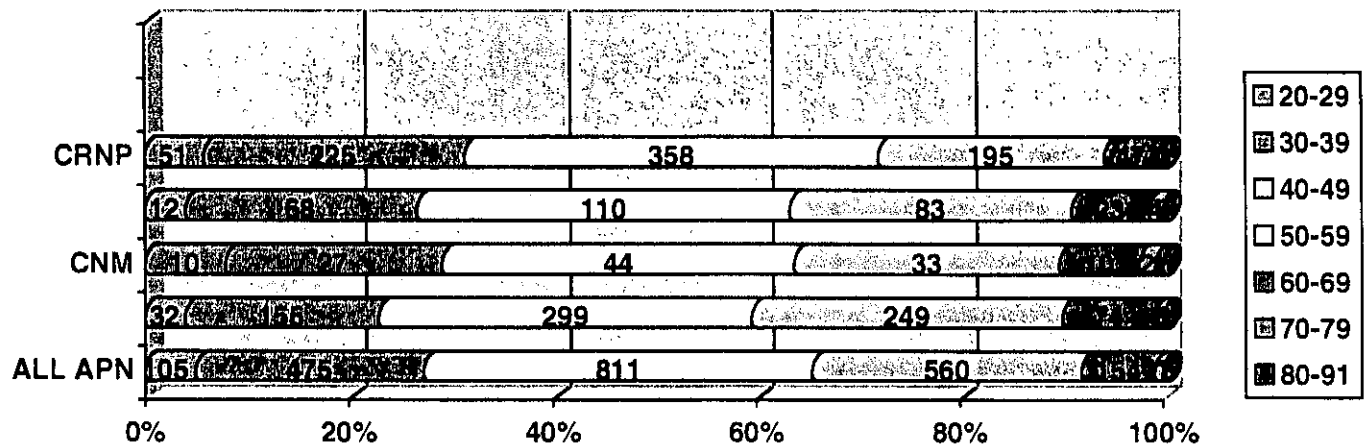
Note. N for the total sample equals 2,123 subjects. N for the CRNA Group equals 816, N for the CNM Group equals 127, N for the CNS Group equals 300, and N for the CRNP Group equals 880.

A closer analysis of the advanced practice nurses composition revealed that 20% of the advanced practice nurses were males, a substantial increase in the percentage of males as compared to the percentage of males (5.4%) in the registered nurse workforce. Analysis of advanced practice nurses revealed that 38% (n=325) of CRNAs (n=862), 13%(n=19) of the CNMs (n=145), 8.4% (n=27) of the CNSs (n=322), and 8.4% (n=77) of the CRNPs (n=918) were males (Figure 23). Plausible rationale for increased recruitment of males to the advanced practice roles may be related to positive images and increased earning power associated with the role.

Figure 23

Males in the Advanced Practice Nurse Workforce
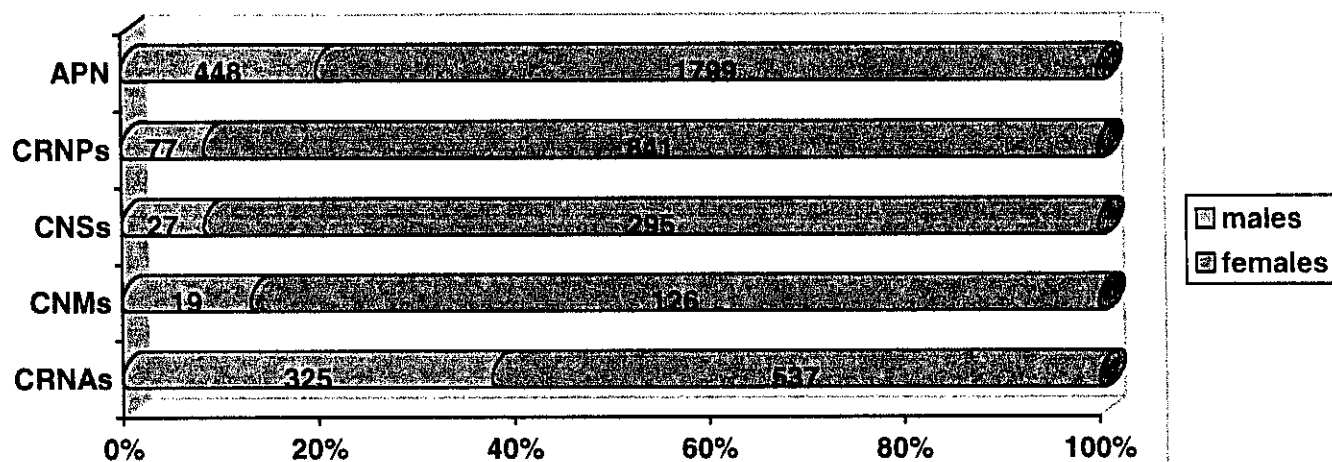
Male nurses, in general, tend to be younger than their female counterparts; however,

3.9% (n=15) of male advanced practice nurses (380) were less than 30, whereas 5% of female

advanced practice nurses were less than 30. Thus, male nurses in advanced practice roles tend to

be older than their female counterparts (Figure 24).

Figure 24

Age groups by Gender
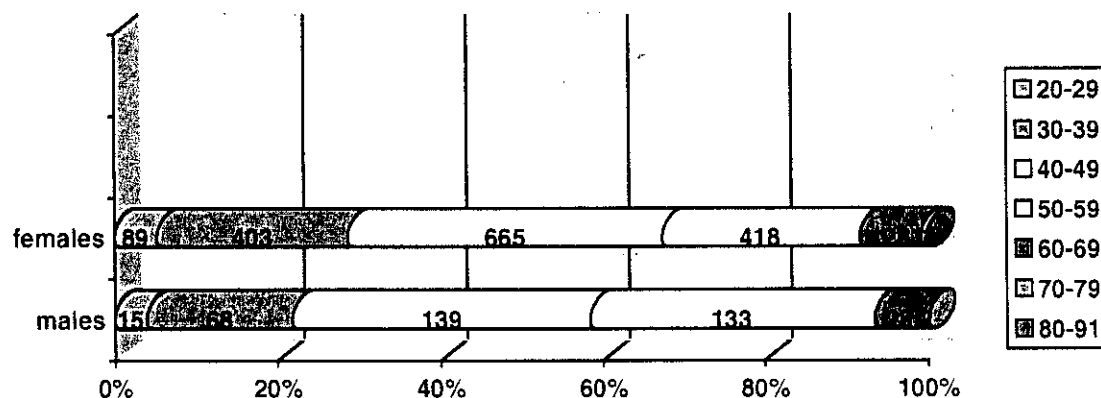
Nationally, 12% of registered nurses came from racial and ethnic backgrounds, of which

40% were black, 28% were Asian, 16% were Hispanic, and 3.9% were American Indian. In

Alabama, 20.9% of the Nurse workforce came from racial and ethnic backgrounds, of which

90% were black, 3% were Asian, 2% were Hispanic, and 3% were American Indian (Figure 4).

The minority advanced practice workforce, however, is more culturally diverse. Approximately

71% (n=197) of the advanced nurse practitioners (n=277) were black, 7% (n=19) were

Hispanic, 7% (n=19) were American Indian, and 10% (n=28) were from other minorities (see

Figure 25).

Figure 25

Ethnic and Racial Composition of the Minority Nurse Workforce
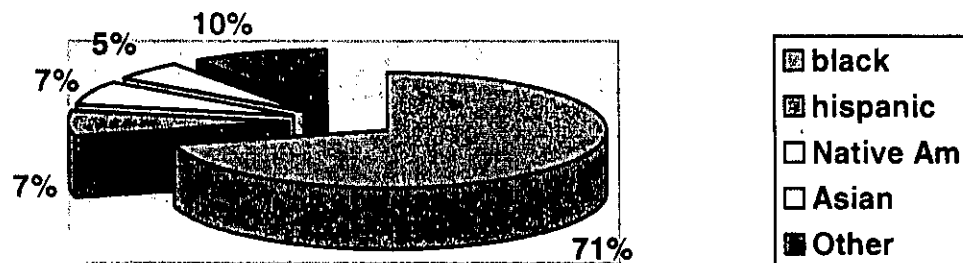
Fifteen percent (n= 4146) of the registered nurse workforce (n=27,704) and 36.7%

(n=3829) of the licensed practical nurse workforce (n=10,430) came from racial and ethnic

backgrounds, whereas 13% of advanced practice nurses represent racial and ethnic backgrounds.

Eighty-seven percent of advanced practice nurses in Alabama were white and 9 percent were

black. Nurses from other racial/ ethnic backgrounds accounted for less than 5% of the advanced

practice nurse workforce (Figure 26).

Figure 26

Ethnicity of the Advanced Practice Nurse Workforce
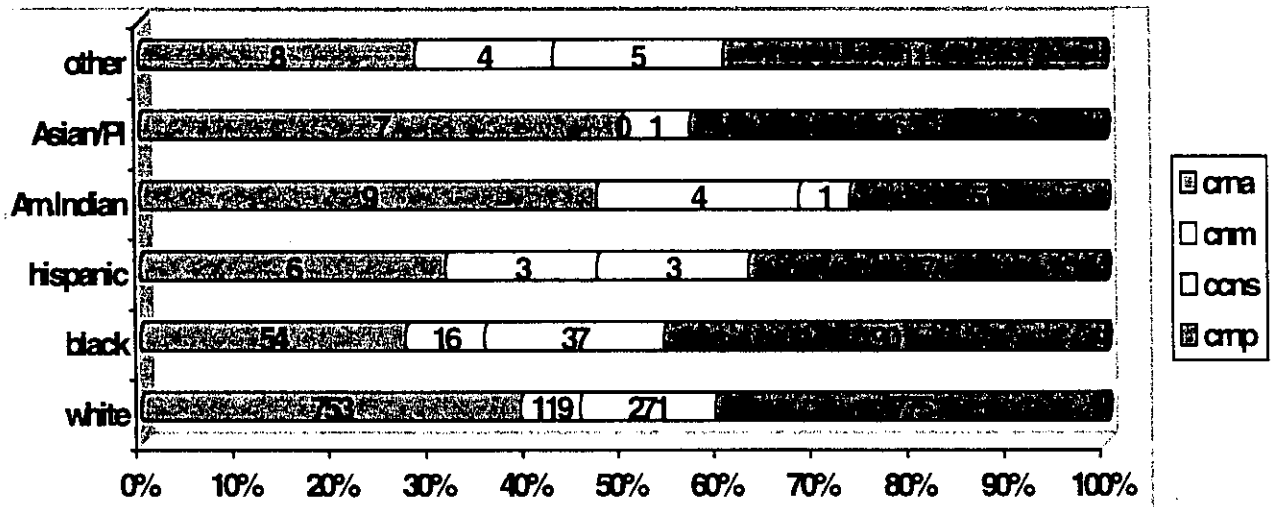
According to the National Sample Survey (2000), family status affects the

employment status of nurses. In Alabama, 72% of advanced practice nurses were

married, 18% were widowed, divorced, or separated, and 10 % were never married,

similar to findings obtained by the National Sample Survey for Registered nurses.

Examination of Figure 27 allows visualization of marital status of each of the advanced

nurse practice groups.

Figure 27

Marital Status of Advanced Practice Nurses
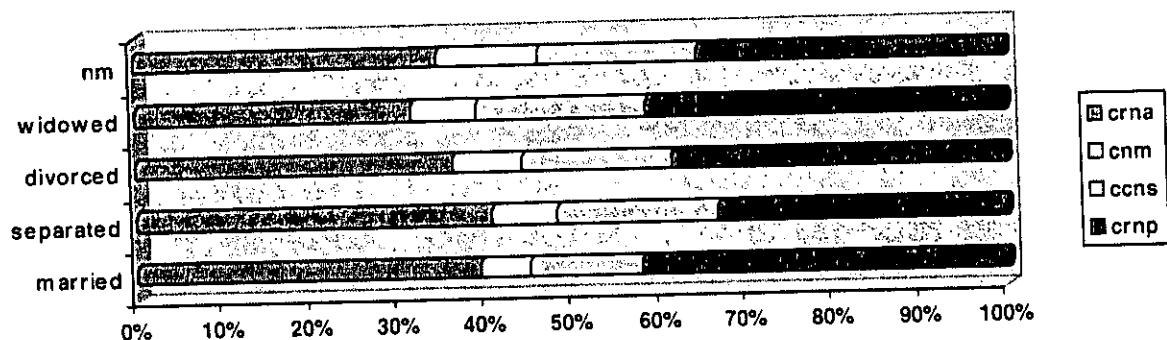
Residence, Clinical Areas, Employment Status, And Employment Settings

Residence of Nurses in the State

The general population of nurses is distributed throughout Alabama similar to

that of the general population. The greater the general population in a particular county,

the greater the population of the workforce. Figure 28 provides a depiction of the

counties of residence of advanced practice nurses for the state. Approximately 55% of

the advanced practice nurse population (n=2,197) reside in seven counties, Jefferson,

Mobile, Madison, Shelby, Montgomery, Tuscaloosa, and Baldwin. Using 2000 census

data, the populations of each of these counties exceeds 100 thousand. Additionally, 11%

of the advanced practice nurses self-reported living out of state. Approximately 13%

40

(n=118) of CRNAs (n=878), 9% (n=13) of CNMs (n=151), 8% (n=25) of CNSs

(n=331), and 9% (n=76) of CRNPs (n=837) resided out of state.

Figure 28

Resident Counties of the Advanced Practice Nurse Workforce
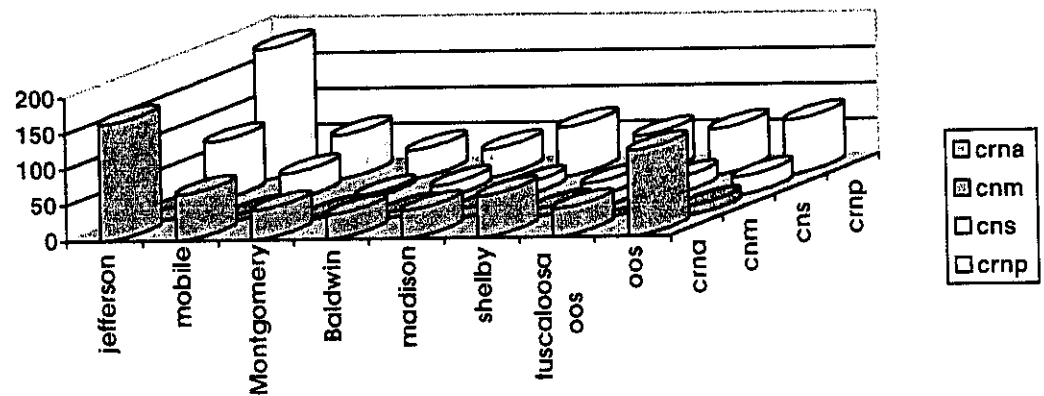
Note. Counties displayed are Jefferson, Mobile, Montgomery, Baldwin, Madison, Shelby,

Tuscaloosa, and Out of State.

According to the self-reported data, none of the CNMs lived in Bibb, Bullock,

Butler, Hale, or Macon counties. Only one advanced practice nurse (CNS) self- reported

living in Bullock county (Figure 29).

Figure 29

Resident Counties of the Advanced Practice Nurse Workforce
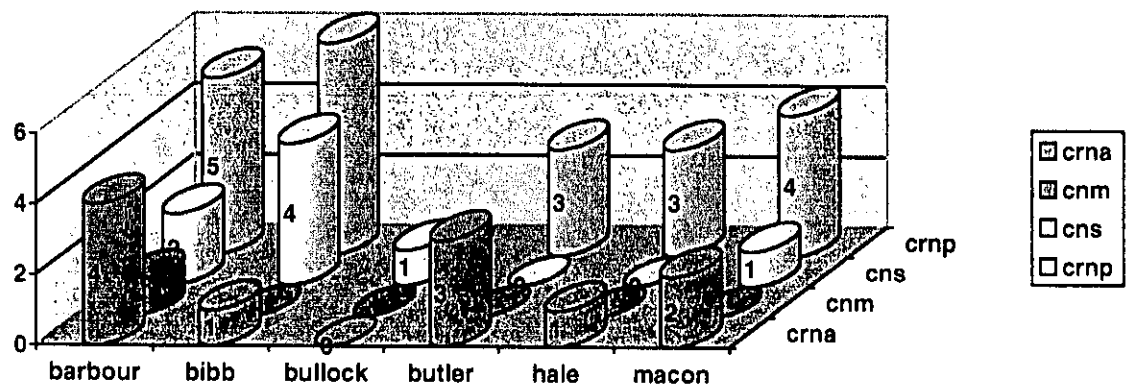
Figure 30 provides data on the counties in which advanced practice nurses were

employed. Approximately 62% (n=1285) of the advanced practice nurses (n=2,085) were

employed in seven counties, Jefferson, Mobile, Montgomery, Shelby, Tuscaloosa,

Walker, and Washington. An additional 10% of the advanced practice nurses self-

reported employment out of state. Approximately 13% (n=105) of CRNAs (n=803), 8%

(n=10) of CNMs (n=133), 8% (n=24) of CNSs (n=299), and 9% (n=74) of CRNPs

(n=850) were employed out of state.

Figure 30

Primary Work Counties of Advanced Practice Nurses
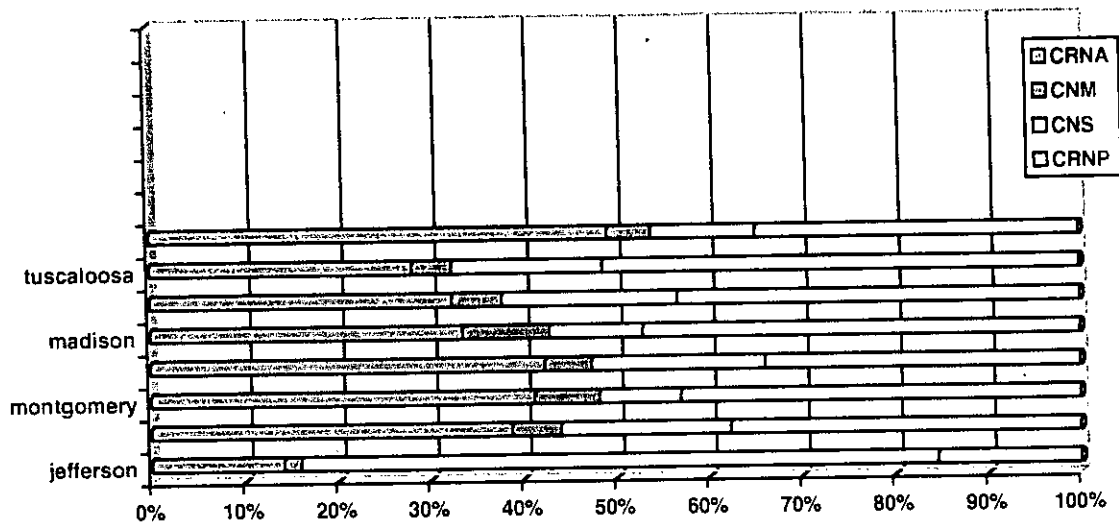
Note. Counties displayed include Jefferson, Mobile, Montgomery. Shelby, Tuscaloosa. Walker, and Washington, respectively.

According to the data collected, 21% (n=459) of advanced practice nurses traveled more than 25 miles one way to work. Approximately 43% of advanced practice nurses traveled less than 10 miles and 36% traveled 11-25 miles one way to work (Figure 31).

Figure 31

Miles Traveled to Work
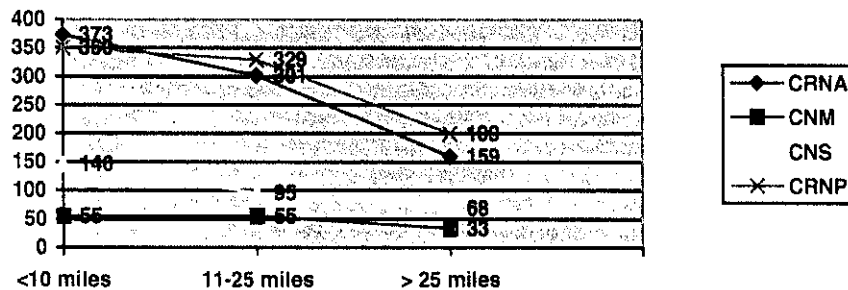
Note. Total number CRNAs = 833, Number of CNMs =143, Number of CNSs =309, and Number of

CRNPs =878.

Additionally, 41% of advanced practice nurses self reported working greater than 41

hours per week and less than 10 percent reported not working at all. The advanced

practice nurses' projection of future work hours (in the next five years) were very similar

to the hours that they self-reported currently working (Figure 32).

Figure 32

Work hours of Advanced Practice Nurses
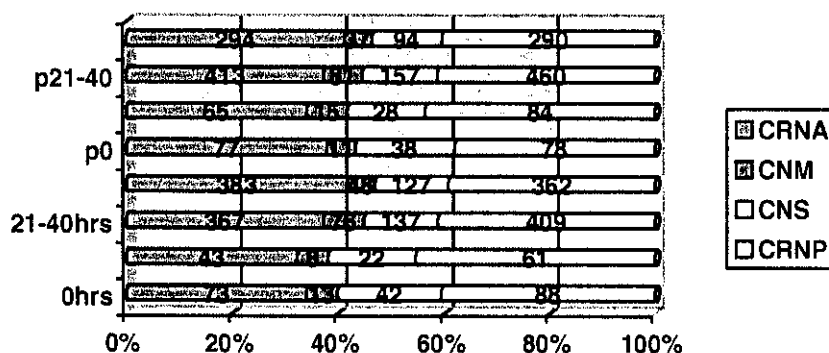
Note. 0 denotes the nurse is not currently working, 10 –20 denotes the nurse works 10-20 hours per week, 21-40 denotes the nurse works 20-40 hours per week, >40 denotes the nurse works more than 40 hours per week, p 0 denotes the nurse does not plan to 5 years from now, p10 –20 denotes the nurse plans to work 10-20 hours per week 5 years from now, p21-40 denotes the nurse plans to work 20-40 hours per week 5 years from now, p>40 denotes the nurse plans to work more than 40 hours per week 5 years from now.

Employment Status of Advanced Practice Nurses

According to the National Sample Survey (2000), Approximately 82% of Alabama's registered nurse workforce were employed in nursing full time, which resulted in 766 Registered nurses per 100,000 population. The ratio of Registered nurses for the East South Central Region was 815 per 1000,000. Of the four states in this region (Alabama, Kentucky, Mississippi, and Tennessee), Mississippi and Alabama fall below the number of employed Registered nurses for the region with 750 and 766 registered nurses employed per 100,000 persons, respectively.

Analysis of the advanced practice nurses workforce data revealed that 73% (n=1660) of advanced practice nurses (n=2264) worked full-time and an additional 12% were employed part-time. Approximately 3% (n=65) of advanced practice nurses were retired, and 4% (n=90) were employed outside of nursing, and/or not interested in employment in Nursing (see Figure 33). Less than 1% of advanced practice nurses reported actively looking for employment in nursing.

Figure 33

Employment Status of Advanced Practice Nurses
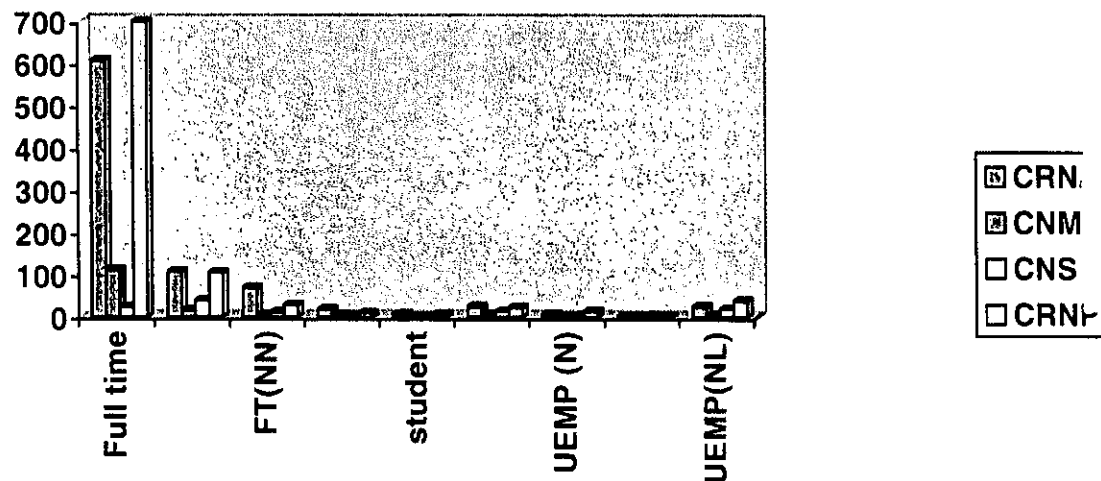
Note. Status displayed are employed full-time, employed part-time, employed full-time(non-nursing), employed part-time (non-nursing), student, retired, unemployed (seeking nursing job), unemployed (seeking non-nursing job), unemployed (not looking).

Employment settings

Figure 34 provides information regarding employment settings for advance practice nurses. Hospitals were the largest employer of nurse practitioners, 31% (n=284), followed by out-patient centers, 17% (n=157), and physician offices, 17% (n=153). A similar pattern is seen with nurse midwives with hospitals employing 43% (n=60), followed by out-patient centers, 12% (n=16), and physician offices, 9% (n=13). The major employer of clinical nurse specialist were hospitals, 46% (n=144), schools of nursing, 9% (n=28), and out-patient clinics, 7% (n=21).

Figure 34

Employment setting for advance practice nurses
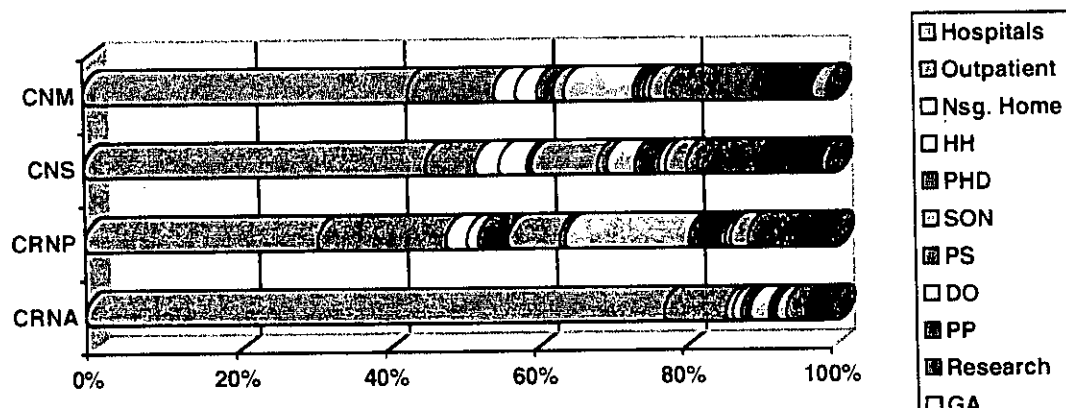
It is interesting to note that approximately 38% of advanced practice nurses self reported

that they functioned in the role of staff nurse, 4% functioned as nursing faculty, and 10%

functioned as nursing managers / administrators. The questionnaire did not delineate the

practitioner role, however, only 43% of advanced practice nurses chose other as an

option (Figure 35).

<u>Figure 35</u>

<u>Roles of Advanced Practice Nurse Workforce</u>
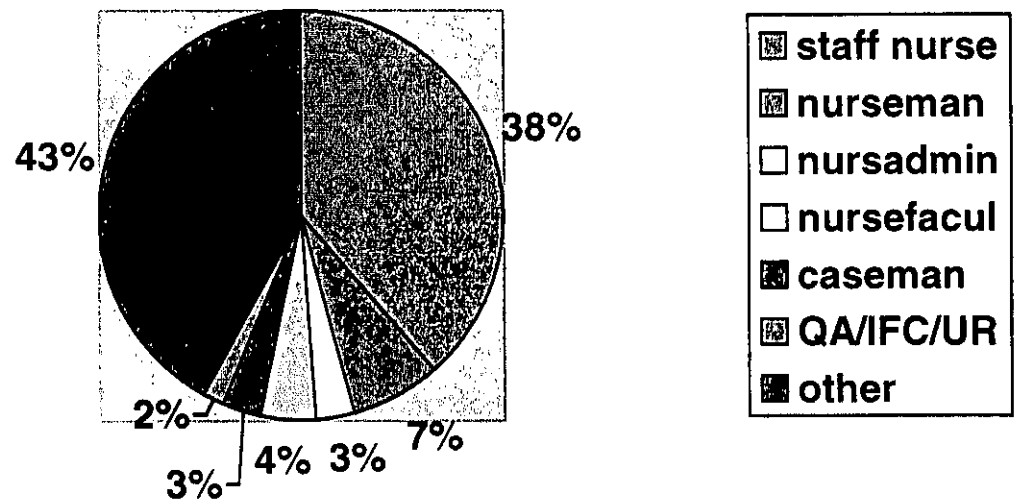
<u>**Conclusions and Discussion**</u>

This study provides comparative data on Alabama nurses' whose licenses were renewed

between 2000 and 2001; and who voluntarily submitted workforce information on

separate data forms to the Board of Nursing. The data are significant in relation to

potential applications in addressing current health care delivery needs, nursing supply

and future nurse manpower demands. This study provided some critical data regarding

the age of nurses, their education, and employment status. The average age of the

workforce indicates an aging workforce, with less than 15 percent of the workforce under 30, an average age of 43 and a modal age of 45. This pattern is consistent with national trends.

Alabama's nurse population, the same as the nation's, is primarily of the female gender. Literature indicates that other career opportunities now offer younger women a variety of career opportunities with better work situations and economic status than offered by nursing. The data from this study:

1. Did not indicate a reduced number of licensees from the previous license period.
2. Showed a declining younger population.
3. Provided information that show less African Americans in registered nurse and practical nurse practice than Caucasians (as related to the percentage in the general population).
4. Showed a dearth of nurses in other minorities when the general population is becoming more diverse.
5. Provide a pattern of employment in which most RNs and LPNs work as staff nurses in a hospital or nursing home setting, primarily caring for adults.
6. Reflect an aging population needing care in that the greatest category of clinical nursing worked is geriatrics, although more LPNs work in that area than RNs.
7. Show sociological factors that should be examined in relation to career choices, recruitment opportunities and employment stability.

While this study did not address reasons for a decreased number of young nurses, it seems essential to have information specific to Alabama that addresses deterrents to nursing, particularly the young, minorities, and males. The 2000 census data reveal a slight increase in the number of 17- year old residents who might be recruited to pursue a

nursing career. Additionally, this study provided information that shows fewer minorities in registered nurse practice than Caucasians by percent. An analysis at reasons why minorities are not attracted to nursing should be identified. Recruitment strategies derived from the analysis may result in increasing the percentages of minorities in nursing as well as decrease the nursing shortage.

Alabama is a state of many cultures and numerous health care challenges. It still houses some of the most unique opportunities to address the challenges. There is a need to consider areas of deficit in meeting identified health care needs of the public and to determine the nursing roles needed to meet those needs. In so doing, a more accurate description of numbers and types of nurses needed to fulfill those roles in health care delivery can be applied to an educational plan and a recruitment plan for current and emerging needs.

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Table 9

WORK to DEGREE Crosstabulation

Agency	DEGREE										Total
	Certificate LPN	Diploma	Associate Degree Other	Associate Degree Nursing	Bachelors Degree Other	Bachelors Degree Nursing	Masters Degree Other	Masters Degree Nursing	Doctorate Degree Other	Doctorate Degree nursing	
Hospital	2246	1539	484	7204	747	4980	360	718	39	13	18330
Out-patient Center or Clinic	459	213	44	594	99	438	52	172	5	8	2084
Nursing Home	2843	473	123	883	83	206	17	31	4	1	4664
Home Health Agency	398	194	58	822	45	343	23	38	1	3	1925
Public Health Department	52	73	9	164	15	158	15	37	2		525
School of Nursing	14	73	2	56	6	56	32	263	43	73	618
School K-12	86	36	8	88	19	121	32	24	1	1	416
Doctor's Office	1365	337	52	546	49	370	15	153	3	1	2891
Private Practice	88	19	9	38	10	29	6	42	6	3	250
Research Center	16	12	2	24	7	63	8	11	2		145
Governmental Agency	37	45	3	99	27	153	20	17	6		407
Assisted Living	109	41	10	69	28	104	34	58	6		459
Other	666	343	74	689	138	565	106	120	21	8	2730
Not applicable	322	547	46	685	104	702	59	129	17	7	2618
17	242	41	6	47	10	14	6	3	1		370
	8943	3986	930	12008	1387	8302	785	1816	157	118	38432

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Table 10

Age to Work Hours for the Future

Age	Work Hours for the Future				Total
	0	1-20	21-40	>40	
21			6	3	9
22	5	4	54	21	84
23	12	18	121	50	201
24	22	23	210	86	341
25	26	47	304	131	508
26	27	42	358	168	595
27	40	59	422	216	737
28	49	68	455	243	815
29	47	76	504	257	884
30	47	97	560	321	1025
31	60	84	569	283	996
32	41	81	544	303	969
33	41	72	447	306	866
34	39	80	465	301	885
35	48	77	492	292	909
36	62	81	516	333	992
37	63	111	620	363	1157
38	83	106	628	393	1210
39	78	112	626	400	1216
40	82	103	684	351	1220
41	69	121	654	399	1243
42	81	82	638	329	1130
43	67	110	671	410	1258
44	100	97	694	423	1314
45	88	109	723	434	1354
46	92	105	698	447	1342
47	96	107	665	418	1286
48	89	110	673	390	1262
49	88	98	591	426	1203
50	66	65	536	378	1045
51	58	70	476	314	918
52	79	69	441	305	894
53	67	74	390	311	842
54	69	69	392	280	810
55	73	65	354	254	746

56	62	48	253	178	541
57	59	51	252	175	537
58	50	48	268	141	507
59	63	46	223	137	469
60	54	38	178	115	385
61	67	46	155	80	348
62	48	46	136	81	311
63	75	44	103	60	282
64	64	43	88	75	270
65	58	31	82	32	203
66	45	30	43	40	158
67	43	29	55	22	149
68	23	11	37	24	95
69	31	19	34	29	113
70	27	17	31	11	86
71	18	13	28	12	71
72	10	9	24	7	50
73	13	12	16	6	47
74	7	6	9	6	28
75	7	9	8	8	32
76	6	2	5	8	21
77	9	6	7	1	23
78	4	2	7	3	16
79	3	2	3	3	11
80	1	2	2	7	12
81	3		1	1	5
82	1	1	2	2	6
83	1				1
86		1		1	2
87			2		2
88			1		1
89	1			1	2
90			1		1
	2907	3304	19235	11605	37051

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